

Davit Shadunts

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EDUCATION

Columbia University | New York, NY

Expected Dec 2025

Master of Science in Electrical Engineering

- Relevant Coursework: GenAI & Modern Deep Learning, Digital Signal Processing, Speech and Audio Processing and Recognition, Reinforcement Learning, System Optimization with AI/ML, Sparse Models for High-Dimensional Data
- Projects: Self Actor-Critics for Energy Storage Arbitrage, Audio Source Separation with DSP

American University of Armenia | Yerevan, Armenia

May 2019

Bachelor of Science in Computer Science

EXPERIENCE

Graduate Research Assistant

Oct 2024 – Present

Columbia University | New York, NY

- Analyzing the role of bisimulation metrics in representation learning by integrating them into the DINO world model to improve state abstraction and generalization, under supervision of Professor James Anderson.
- Developing an optimization-based method for real-world time-series signal detection in high-noise settings (gravitational wave from black holes), while providing performance guarantees, with Professor John Wright.

Computer Vision Researcher

Oct 2023 – Jul 2024

Yerevan State University CV Lab | Yerevan, Armenia

- Trained and evaluated Swin Transformer and YOLOv8 models for anomaly detection in photovoltaic modules
- Examined image enhancement effects (Gamma Correction, Zero-DCE, etc.) on classification performance
- Built a software solution enabling team members to integrate Python-based algorithms, process solar panel images through a pipeline of enhancement, segmentation, classification, and evaluation

Senior Software Engineer

Jul 2021 -- Oct 2023

Toptal (PepsiCo, Shippo) | San Francisco, CA

- Led PepsiCo's WordPress to React (Next.js) migration, implementing headless CMS for entire system
- Executed migration of Shippo's 200k+ codebase to Python 3, improving CI/CD pipelines in CircleCI

Software Engineer

Jun 2018 – Jul 2019

Aarki Inc. (Acquired by Skillz Inc.) | Yerevan, Armenia

- Developed optimization algorithms for mobile ad creation platform used by Candy Crush and Facebook
- Redesigned company's core platform, moving from a monolithic architecture to microservices

VOLUNTEERING

Data Science Lecturer

Jul 2019 - Jul 2021

Mandatory Military Service | Agarak, Armenia

- Initiated an educational program providing free computer science education to 60 schoolchildren from rural areas
- Designed an [interactive visualization tool](#) to help students better grasp Data Structures and Algorithms
- Implemented an Object Recognition project, utilizing Python and Google Cloud to collect and store high-resolution satellite images. Employed Tensorflow and OpenCV to detect cultural heritage sites within imagery

CERTIFICATIONS

Oxford Machine Learning Summer School 2023: Completed a 3-month in-person course at the University of Oxford focusing on ML in Finance, Natural Language Processing, Computer Vision and ML in Health

Stanford University: NLP with Deep Learning: Completed a 12-week course from Stanford Online School focusing on modern neural network algorithms for the processing of linguistic information with PyTorch. Final grade: 102.5%

TECHNICAL SKILLS

Languages: Python, R, Matlab, Java, C++, JavaScript, HTML, CSS, SQL

Frameworks: PyTorch, TensorFlow, CUDA, cuDNN, scikit-learn, DINOv2, DINO-WM, Mujoco, OpenAI Gym, OpenCV, MMDetection, Detectron2, Yolo, NumPy, SciPy, Pandas

Web Development: Flask, Django, Java Spring, React/Redux, Next.js, TypeScript, Angular, NodeJS, GraphQL

Databases: MySQL, PostgreSQL, Oracle, MongoDB, Amazon RDS, Amazon Dynamo DB, Firebase, Spark, Hadoop

Cloud \& DevOps Tools: AWS SageMaker, Glue, Step Functions, EC2, S3, Lambda, Cognito, Google Cloud Compute, Docker

Other tools: Unix/Linux, Conda, Bitbucket, GitHub, PyCharm, VSCode, IntelliJ